

REMARKS

The Office Action of 04/24/2009 has been carefully considered.

Claims 110 and 124 were indicated as containing allowable subject matter, which indication is appreciatively acknowledged.

Claims 88, 95 and 116-119 were rejected as being unpatentable over Sugiyama in view of Watanabe (newly cited) and further in view of Leedy. (Although page 3 of the rejection refers only to Sugiyama and Watanabe, page 4 of the rejection refers also to Leedy. The omission from Leedy in the initial statement of the rejection is therefore believed to be in error.) Claims 106-108, 111-114, 120-122 and 125-128 were rejected as being unpatentable over the same base combination further in view of Faris and Sakui. Claims 109 and 123 were rejected as being unpatentable over the prior combination further in view of Daberkö. The claims have been amended to more clearly distinguish over the cited references. Dependent claims 129-134 have been newly added. Reconsideration is respectfully requested.

More particularly, independent claims 88, 116, and 118 have been amended to recite in part a thinned substrate having a *polished surface*. Surface polishing achieves stress relief and provides a smooth surface for the formation of interconnect metallization. None of the cited references is believed to teach or suggest such surface polishing with respect to a thinned substrate. All of the claims are therefore believed to be allowable over the prior art for at least this reason.

With respect to the prior obviousness rejection, although this rejection is believed to be no longer applicable, it is also believed to be significantly flawed, as set forth below.

Rejection of Claims 88, 95 and 116-119 as Unpatentable Over Sugiyama in View of Watanabe Further in View of Leedy

In the prior Office Action, the claims were rejected as being unpatentable over Sugiyama in view of Leedy. The purported motivation for combining the teachings of Sugiyama and Leedy was “to provide structural integrity.” In the prior Response, Applicant disputed this motivation as lacking technical merit. This argument was apparently found to be persuasive, resulting in the present Office Action in which the claims are rejected as being unpatentable over Sugiyama in view of Watanabe further in view of Leedy.

However, the same supposed motivation for combining the teachings of Leedy with those of Sugiyama and Watanabe is cited—“to provide structural integrity.” This motivation is believed to be technically unsound for the reasons set forth in the prior reply. That is, the substrates of Sugiyama are, to all indications, of ordinary thickness (e.g., 300-500 microns). The structural integrity of substrates of such ordinary thickness without the need of any further measures is well-established and demonstrated. Hence, contrary to the rejection, Sugiyama has *no need* of the techniques of Leedy for ensuring structural integrity of a thinned substrate or IC membrane.

Furthermore, the problem of proper motivation to combine has only been compounded with the proposed additional combination of Watanabe. Watanabe teaches a technique for making an IC assembly having two ICs made of dissimilar semiconductor materials, namely silicon and gallium arsenide. The silicon wafer is thinned and adhered to a sapphire wafer. Following dicing, a relatively small gallium arsenide IC is bonded to the silicon IC. The sapphire substrate provides thermal matching.

The Watanabe technique is wholly inapplicable to Sugiyama. Sugiyama teaches the face-to-face bonding of two IC wafers. There is no opportunity for the bonding of a further IC subsequent to dicing—the surfaces that might otherwise be bonded to are internal to the Sugiyama structure. Without such subsequent bonding, there would be no need for the thermal matching substrate, i.e., the sapphire substrate.

As no reasonable motivation has been identified for combining the teachings of the references in the manner indicated, the cited references are not believed to teach or suggest the invention of claim 88, particularly as it has now been amended to recite in part a thinned substrate having a polished surface.

The same argument applies equally to claims 116 and 119. Hence, it may be seen that the cited references do not teach or suggest the invention of claims 88, 116 or 119. Withdrawal of the rejection is respectfully requested.

The various combinations of references used to reject the dependent claims do nothing to address the teachings absent from the base combination as noted above. Therefore, the dependent claims are believed to be allowable as depending on an allowable base claim.

Applicant further reiterates that motivation to combine is not supplied merely by two references being from the same field of endeavor (e.g., two integrated circuits). *If a proposed combination would make no reasonable sense to a person of ordinary skill in the art, motivation to combine is necessarily lacking.*

As there has been ample opportunity during prosecution of the present application for a case of obviousness to be established (if the prior art will indeed support such a finding), and since no *prima facie* case of obviousness is believed to have been established, allowance of the present application is believed to be in order and is respectfully requested.

Withdrawal of the rejections and allowance of claims 88, 95, 106-109, 111-114, 116-123 and 125-134 is respectfully requested.

Respectfully submitted,

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